

=> fil wpix

FILE 'WPIX' ENTERED AT 15:46:21 ON 25 APR 2007
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FILE LAST UPDATED: 17 APR 2007 <20070417/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE: 200725 <200725/DW>
DERWENT WORLD PATENTS' INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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SEE ONLINE NEWS and

http://www.stn-international.de/archive/stn_online_news/fraghitstr_ex.pdf

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<http://scientific.thomson.com/support/patents/coverage/latestupdates/>

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http://www.stn-international.de/stndatabases/details/ipc_reform.html and
<http://scientific.thomson.com/media/scpdf/ipcrdwpi.pdf>

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PLEASE SEE

http://www.stn-international.de/stndatabases/details/dwpi_r.html <<<

=> d his nofile

(FILE 'HOME' ENTERED AT 14:28:28 ON 25 APR 2007)

FILE 'HCAPLUS' ENTERED AT 14:28:46 ON 25 APR 2007
E US2004-763730/APPS

L1	88	SEA	ABB=ON	PLU=ON	WAINRIGHT ?/AU
L2	347	SEA	ABB=ON	PLU=ON	PAYER ?/AU
L3	73	SEA	ABB=ON	PLU=ON	DUDIK ?/AU
L4	12228	SEA	ABB=ON	PLU=ON	LEVINE ?/AU
L5	2	SEA	ABB=ON	PLU=ON	L1 AND L2
					D SCA

FILE 'REGISTRY' ENTERED AT 14:57:31 ON 25 APR 2007

L6	1906364	SEA	ABB=ON	PLU=ON	B8/PG
L7	2619	SEA	ABB=ON	PLU=ON	L6 AND 1/ELC.SUB

FILE 'HCAPLUS' ENTERED AT 14:58:48 ON 25 APR 2007

L8		QUE	ABB=ON	PLU=ON	(IRON OR FE OR RUTHENIUM OR RU OR COBALT OR CO OR RHODIUM OR RH OR IRIIDIUM OR IR OR NICKEL OR NI OR PALLADIUM OR PD OR PLATINUM OR PT)
L9		QUE	ABB=ON	PLU=ON	L8 (L) METAL?
L10		QUE	ABB=ON	PLU=ON	(GROUP (2A) VIII) (2A) METAL?

FILE 'HCAPLUS, COMPENDEX, JAPIO, INSPEC, PASCAL' ENTERED AT
15:45:10 ON 25 APR 2007

L51 17 DUP REM L50 L36 L40 L44 L48 (2 DUPLICATES REMOVED)

=> d l32 ifull 1-9

L32 ANSWER 1 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2005-758638 [77] WPIX
DOC. NO. CPI: C2005-231522 [77]
TITLE: Hydrogen storage composition for providing supply
of hydrogen useful in e.g. mobile power source
comprises **particulate** alloy containing
grains of magnesium with grain boundaries having
nickel and non-**nickel** transition
metal
DERWENT CLASS: E36; J06; M26
INVENTOR: BOYD D A; GUTFLEISCH O; PRATT A S
PATENT ASSIGNEE: (JOHO-C) JOHNSON MATTHEY PLC
COUNTRY COUNT: 109

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005100624	A1	20051027	(200577)*	EN	22	[10]
EP 1753886	A1	20070221	(200717)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005100624	A1	WO 2005-GB1438	20050414
EP 1753886	A1	EP 2005-738227	20050414
EP 1753886	A1	WO 2005-GB1438	20050414

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1753886	A1 Based on	WO 2005100624 A

PRIORITY APPLN. INFO: GB 2004-8393 20040415

INT. PATENT CLASSIF.:

IPC ORIGINAL: C01B0003-00 [I,A]; C01B0003-00 [I,C]; C22C0023-00
[I,A]; C22C0023-00 [I,C]

IPC RECLASSIF.: C01B0003-00 [I,A]; C01B0003-00 [I,C]; C22C0023-00
[I,A]; C22C0023-00 [I,C]

BASIC ABSTRACT:

WO 2005100624 A1 UPAB: 20060125

NOVELTY - A hydrogen storage composition (C1) comprises a
particulate alloy (a1) containing grains of magnesium. The
grain boundaries contain phases having **nickel** (less than
or equal to 5, preferably less than or equal to 2, especially 0.01 -
1 weight%) and non-**nickel** transition **metal** (less
than or equal to 5, preferably 0.01 - 0.5, especially 0.01 - 0.2
weight%).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for

the following:

(1) preparation of (C1) involving melting the magnesium, **nickel** and the at least one non-**nickel** transition **metal** to form an alloy, cooling the molten alloy to produce a solid alloy and processing the solid alloy to produce **particles** of the desired **size**; and

(2) an apparatus for providing, on demand, a replenishable supply of hydrogen, comprising container containing (C1); device for adjusting the pressure within the container; device for adjusting the temperature of the contents of the container (18); and controller for pressure adjusting device and/or the temperature adjusting device.

USE - For providing, on demand, a replenishable supply of hydrogen; in a mobile power source, stationary power source (claimed)

ADVANTAGE - The composition provides more active hydrogen storage material, and thus provides a replenishable supply of hydrogen.

TECHNOLOGY FOCUS:

INORGANIC CHEMISTRY - Preferred Components: The **particles** of the alloy have an average size of less than 500 **microns**. The non- **nickel** transition **metal** is Pt, Pd, Ru, Ir, Ag, Au, Cu, Co and/or W (preferably Pt, Pd, Ru, Ir and/or Ag).

The magnesium is in the form of a hydride. Preferred Process: The melted alloy is cooled by casting and processed by powder spray atomization. The solid **alloy** is processed by **grinding** and milling. The milling is carried out under an atmosphere comprising hydrogen to produce magnesium hydride. Preferred Apparatus: The controller controls the temperature adjusting device to heat (C1) to 100 - 350degreesC; and controls the pressure adjusting device to adjust the pressure in the container to 1 - 10 bar (10-2 - 10-1 kPa) to **absorb** or **desorb hydrogen** in (C1).

ORGANIC CHEMISTRY - Preferred Components: The **particles** of the alloy have an average size of less than 500 **microns**. The non- **nickel** transition **metal** is Pt, Pd, Ru, Ir, Ag, Au, Cu, Co and/or W (preferably Pt, Pd, Ru, Ir and/or Ag).

The magnesium is in the form of a hydride. Preferred Process: The melted alloy is cooled by casting and processed by powder spray atomization. The solid **alloy** is processed by **grinding** and milling. The milling is carried out under an atmosphere comprising hydrogen to produce magnesium hydride. Preferred Apparatus: The controller controls the temperature adjusting device to heat (C1) to 100 - 350degreesC; and controls the pressure adjusting device to adjust the pressure in the container to 1 - 10 bar (10-2 - 10-1 kPa) to **absorb** or **desorb hydrogen** in (C1).

EXTENSION ABSTRACT:

EXAMPLE - Magnesium (99.9 g) and **nickel** (1 g) together with **palladium** (0.2 g) were weighed out, (the excess of magnesium was present to compensate for the approximate 1% vapor loss experienced during melting) and melted in a pre-dried, heated Alumina crucible under 250-300 mbar (2.5×10^{-3} - 3×10^{-3} kPa) Ar in after initial evacuation at 10 - 5 torr. Melting time was approximately 10 minutes, and the melt was kept in the molten state for the shortest time that allowed complete

dissolution and mixing, about 2 minutes. The molten charge was then cast into a copper chill mould from 100degreesC above the melting point. The recovered ingot was cleaned, and reduced to a crude powder under Ar before being transferred to an IFW Dresden for milling under hydrogen for greater than 100 hours. Hydrogen absorption and desorption measurements were carried on the composition at varied temperatures. Hydrogen absorption was carried out using H2 gas at a pressure of 10 bar (10-1 kPa). Hydrogen desorption was carried out using H2 gas at a pressure of either 1 bar or 50 mbar (1x10-2 - 5x10-3 kPa). The results showed that the composition **absorbed hydrogen** to levels in excess of 6 weight% in less than 60 minutes at temperatures as low as 250degreesC and desorbs hydrogen fully within 30 minutes at temperatures as low as 275degreesC. Additionally, exhibited the favorable characteristics of readily absorbing and desorbing approximately 6 weight% of hydrogen at less than 300degreesC after multiple absorption desorption cycles.

FILE SEGMENT: CPI
 MANUAL CODE: CPI: E11-S; E31-A02B; J06-B06; M26-A01; M26-A01N; M26-B10; M26-B10N

L32 ANSWER 2 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
 ACCESSION NUMBER: 2002-667502 [71] WPIX
 DOC. NO. CPI: C2002-187539 [71]
 DOC. NO. NON-CPI: N2002-528138 [71]
 TITLE: Quality determination of rare earth magnet alloy ingot, for producing magnet, involves placing ingot in reduced-pressure atmosphere and hydrogen atmosphere followed by determining hydrogen absorption of ingot
 DERWENT CLASS: J04; M26; P53; S03; V02
 INVENTOR: HOSONO U
 PATENT ASSIGNEE: (SHOW-C) SHOWA DENKO KK
 COUNTRY COUNT: 97

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2002075305	A1	20020926	(200271)*	EN	62 [10]	
JP 2002275598	A	20020925	(200278)	JA	23	C22C038-00
CN 1459025	A	20031126	(200413)	ZH		
AU 2002242951	A1	20021003	(200432)	EN		
CN 1737181	A	20060222	(200639)	ZH		C22C038-00
CN 1231754	C	20051214	(200654)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002075305	A1	WO 2002-JP2483	20020315
JP 2002275598	A	JP 2001-75166	20010316
AU 2002242951	A1	AU 2002-242951	20020315
CN 1459025	A	CN 2002-800654	20020315
CN 1737181	A Div Ex	CN 2002-800654	20020315
CN 1737181	A	CN 2005-10084295	20020315
CN 1231754	C	CN 2002-800654	20020315

FILING DETAILS:

PATENT NO	KIND	PATENT NO
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AU 2002242951 A1	Based on	WO 2002075305 A

PRIORITY APPLN. INFO: US 2001-282189P 20010409
 JP 2001-75166 20010316

INT. PATENT CLASSIF.:

MAIN: G01N033-20
 SECONDARY: C22C033-04
 IPC ORIGINAL: C22C0038-00 [I,A]; C22C0038-00 [I,C]
 IPC RECLASSIF.: B22F0009-02 [I,A]; B22F0009-02 [I,C]; B22F0009-02
 [I,C]; B22F0009-04 [I,A]; C22C0038-00 [I,A];
 C22C0038-00 [I,A]; C22C0038-00 [I,C]; C22C0038-00
 [I,C]; C22C0038-04 [I,A]; C22C0038-04 [I,C];
 C22C0038-14 [I,A]; C22C0038-14 [I,C]; G01N0033-20
 [I,A]; G01N0033-20 [I,C]; H01F0001-032 [I,C];
 H01F0001-053 [I,A]; H01F0001-057 [I,A]

BASIC ABSTRACT:

WO 2002075305 A1 UPAB: 20050527

NOVELTY - A rare earth magnet alloy ingot comprising 27-34 mass% of rare earth **metals**, 0.7-1.4 mass% of boron and transition **metals** including **iron** is placed in a reduced-pressure atmosphere. The ingot is subsequently placed in a hydrogen atmosphere, and the hydrogen absorption behavior of the ingot is determined in hydrogen atmosphere.

DETAILED DESCRIPTION - A rare earth magnet alloy ingot comprising (in mass%) rare earth **metals** (27-34), selected from yttrium, lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and/or lutetium; boron (0.7-1.4) and a transition **metal** including **iron** is placed in a reduced-pressure atmosphere. The ingot is subsequently placed in a hydrogen atmosphere and the hydrogen absorption behavior of the ingot is determined. Thus, the quality of the ingot is determined.

INDEPENDENT CLAIMS are included for:

- (1) Production of rare earth magnet alloy ingot, by determining quality of the ingot and removing ingot having an undesirable quality during production of magnet;
- (2) Rare earth magnet alloy ingot which is placed in the reduced-pressure atmosphere of 8×10^{-4} - 1×10^{-2} Pa. The ingot is subsequently placed in hydrogen atmosphere at a pressure of 101-160 kPa and at 283-313 K. The hydrogen absorption behavior of the ingot is determined by a period of time between a time when the ingot is placed in the hydrogen atmosphere and a time when an amount of **hydrogen absorbed** reaches 1% of the maximum **absorbable** amount of **hydrogen** in the alloy of 200-2400 seconds and a maximum hydrogen absorption rate of the alloy of 1×10^{-4} - 1.2×10^{-3} mass%/seconds; and
- (3) A rare earth magnet produced from the rare earth magnet alloy ingot.

USE - For determining quality of rare earth magnet alloy ingot, used for producing rare earth magnet (claimed).

ADVANTAGE - The quality of the ingot is determined by evaluating the ingot itself. Thus, the time required for producing the ingot is reduced and production cost is also reduced. Since the ingot with an undesirable quality is removed during production of magnet, the ingot is produced efficiently. The pyrites size of the alloy powder after completion of hydrogen decrepitation and magnetic characteristic of the magnet produced from the ingot are accurately predicted by elevating the ingot itself. Thus, the

sintered magnet produced has excellent magnetic characteristics, such as residual magnetic flux density, coercive force and magnetic energy product.

TECHNOLOGY FOCUS:

INORGANIC CHEMISTRY - Preferred Method: The ingot is coarsely crushed and placed in reduced-pressure atmosphere. The ingot is placed in a hydrogen atmosphere at 273-373 K. It is produced by a rapid-cool casting method, such as strip casting. The hydrogen absorption behavior of the ingot is determined by measuring a time-elapsd change in an amount of **hydrogen absorbed** in the ingot from a time when the ingot is placed in the hydrogen atmosphere. The time when an amount of **absorbed hydrogen** reaches 1% of a maximum amount of **hydrogen absorbable** in the alloy is 100-1800 seconds and maximum hydrogen-absorption rate of the alloy is 1.2×10^{-4} - 1.5×10^{-3} mass%/seconds.

EXTENSION ABSTRACT:

EXAMPLE - Neodymium (in mass%) (33.4), boron (1.1), aluminum (0.4), copper (0.03) and iron were mixed to prepare an alloy. The alloy was melted, poured into a tundish and then onto a roll. The periphery velocity of the roll was controlled to 0.8 m/second, to regulate the average cooling rate of the molten alloy within 1000degreesC to 400degreesC/second. The cast alloy was collected in a product container. The container was cooled and the average cooling rate within 800-600degreesC was controlled to 0.5degreesC/sec. The obtained cast alloy pieces had an average thickness of 0.35 mm. Subsequently, the obtained cast alloy was subjected to hydrogen decrepitation. Fragments of the alloy pieces were introduced into an apparatus and the apparatus was sealed. The interior of the apparatus was adjusted to an atmosphere of 1×10^{-3} Pa and the fragments were maintained in the atmosphere for 3 hours. Subsequently, the atmosphere was changed to a hydrogen atmosphere of 140 kPa and the inner temperature was maintained at 303 K. The change in pressure inside the apparatus was measured. Based on the obtained data, the amount of **hydrogen absorbed** in the alloy at various times were plotted on a graph to obtain time-elapsd change in the amount of the **hydrogen absorbed**. The period of time between start of the hydrogen pressurization and time when the amount of **absorbed hydrogen** reached 1% the maximum absorbed amount of the alloy was calculated as 280 seconds. The maximum hydrogen-absorption rate was calculated as 8.3×10^{-4} mass%/sec. The treated alloy was further pulverized into a powder having an average particle size of 3.2 micron. The powder was molded in a magnetic field, and the resultant compact was sintered to produce a sintered magnet. The sintered magnet had magnetic characteristics such as residual magnetic flux density of 1.29 T, coercive force of 867 kA/m and magnetic energy product of 331 kJ/m³.

FILE SEGMENT:

CPI; GMPI; EPI

MANUAL CODE:

CPI: J04-C03; M26-B16

EPI: S03-E09A; V02-A01A1; V02-A01A9; V02-H04

L32 ANSWER 3 OF 9 WPIX COPYRIGHT 2007

THE THOMSON CORP on STN

ACCESSION NUMBER: 2002-149621 [20] WPIX

DOC. NO. CPI: C2002-046548 [20]

DOC. NO. NON-CPI: N2002-113444 [20]

TITLE:

Production of **hydrogen absorbing**
alloy powder, involves performing
mechanical alloying or

mechanical grinding of aggregate
of metal matrix particles and
added component particles

DERWENT CLASS: E36; L03; M22; P53; X16; X21
INVENTOR: GOTO H; HOSOE M; KANOYA I; SUZUKI T
PATENT ASSIGNEE: (GOTO-I) GOTO H; (HOND-C) HONDA GIKEN KOGYO KK;
(HOND-C) HONDA MOTOR CO LTD; (HOSO-I) HOSOE M;
(KANO-I) KANOYA I; (SUZU-I) SUZUKI T
COUNTRY COUNT: 28

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1174385	A2	20020123	(200220)*	EN	25 [15]	C01B003-00
US 20020033209	A1	20020321	(200224)	EN		C22B001-248
JP 2002053902	A	20020219	(200229)	JA	8	B22F009-04
JP 2002053926	A	20020219	(200229)	JA	9	C22C023-00
US 6656246	B2	20031202	(200379)	EN		B22F009-04
EP 1174385	B1	20041006	(200466)	EN		C01B003-00
DE 60106149	E	20041111	(200474)	DE		C01B003-00
JP 3696514	B2	20050921	(200562)	JA	11	B22F001-00
US 7060120	B1	20060613	(200639)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1174385	A2	EP 2001-113224	20010530
JP 2002053902	A	JP 2001-44088	20010220
JP 3696514	B2	JP 2001-44088	20010220
JP 2002053926	A	JP 2001-142250	20010511
DE 60106149	E	DE 2001-606149	20010530
DE 60106149	E	EP 2001-113224	20010530
US 20020033209	A1	US 2001-866783	20010530
US 6656246	B2	US 2001-866783	20010530
US 7060120	B1 Div Ex	US 2001-866783	20010530
US 7060120	B1	US 2003-674018	20030930

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 60106149	E	EP 1174385
JP 3696514	B2	JP 2002053902
US 7060120	B1	US 6656246

PRIORITY APPLN. INFO: JP 2001-142250 20010511
JP 2000-166480 20000531
JP 2001-44088 20010220

INT. PATENT CLASSIF.:

MAIN: C01B003-00
SECONDARY: C22C001-04; H01M004-38
IPC ORIGINAL: C22C0023-00 [I,A]; C22C0023-00 [I,C]
IPC RECLASSIF.: B22F0001-00 [I,A]; B22F0001-00 [I,A]; B22F0001-00 [I,C]; B22F0001-00 [I,C]; B22F0009-02 [I,C]; B22F0009-04 [I,A]; C01B0003-00 [I,A]; C01B0003-00 [I,C]; C22C0023-00 [I,A]; C22C0023-00 [I,C]; F17C0011-00 [I,A]; F17C0011-00 [I,C]; H01M0008-04 [I,A]; H01M0008-04 [I,C]

BASIC ABSTRACT:

EP 1174385 A2 UPAB: 20060118

NOVELTY - An aggregate of metal matrix particles (5) and an aggregate of added component particles (6) are subjected to mechanical alloying or mechanical grinding to form hydrogen absorbing alloy powder (1) comprising metal matrix (2) and added components (3). The particle size (D) of metal matrix particles and particle size (d) of added component particle satisfies specific relation.

DETAILED DESCRIPTION - An aggregate of metal matrix particles (5) and an aggregate of added component particles (6) are subjected to mechanical alloying or mechanical grinding to form hydrogen absorbing alloy powder (1) comprising metal matrix (2) and added components (3). The particle size (D) of metal matrix particles and particle size (d) of added component particle satisfies the relation $d \leq D/6$.

INDEPENDENT CLAIMS are also included for:

(1) hydrogen absorbing alloy powder, which is an aggregate of alloy particles each including a magnesium (Mg) matrix and several ultrafine particles dispersed in it; and

(2) a hydrogen storing tank, containing the hydrogen absorbing alloy powder, for mounting in a vehicle.

The Mg matrix comprises several Mg crystals having grain size D_c of 1.0-500 microns. The ultrafine particles have particle size d_0 of 10 nm at most d_0 at most 500 nm and is selected from nickel, iron, vanadium, manganese, titanium, copper, aluminum, palladium, platinum, zirconium, gold, silver, cobalt, molybdenum, niobium, chromium, zinc, ruthenium, rhodium, tantalum, iridium and tungsten ultrafine particles or their alloys.

USE - For fuel cell electric vehicles.

ADVANTAGE - The milling time of hydrogen absorbing alloy powder is shortened remarkably.

DESCRIPTION OF DRAWINGS - The figure shows the hydrogen absorbing alloy powder.

Hydrogen absorbing alloy powder (1)

Metal matrix (2)

Added components (3)

Aggregate of metal matrix particle (5)

Aggregate of added component particles (6)

TECHNOLOGY FOCUS:

INORGANIC CHEMISTRY - Preferred Property: The metal matrix particle has size D at least 3 microns and the added component particle has particle size d at most 500 nm.

The ultrafine particles have particle size d_0 at least 100 nm. The content (Gp) of ultrafine particle is 0.1 atom% at most Gp at most 5.0 atom%, preferably 0.3 atom% at most Gp at most 3.0 atom%.

Preferred Particles: The ultrafine particle comprises several nickel and iron ultrafine particles.

EXTENSION ABSTRACT:

L11 QUE ABB=ON PLU=ON PARTICL? OR MICROPARTICL? OR
 PARTICULAT? OR MICROPARTICULAT?
 L12 90621 SEA ABB=ON PLU=ON L7 (L) (METAL?)
 L13 19221 SEA ABB=ON PLU=ON L7 (L) L11
 L14 QUE ABB=ON PLU=ON ALLOY?
 L15 QUE ABB=ON PLU=ON MILL### OR MECHANIC? OR MACHIN?
 L16 QUE ABB=ON PLU=ON GRIND? OR GRANULAT? OR PULVERIZE?
 L17 42287 SEA ABB=ON PLU=ON (L15 OR L16) (3A) L14
 L18 QUE ABB=ON PLU=ON SIZE? OR DIAMETER? OR DIAM# OR
 RADIUS? OR RADII
 L19 QUE ABB=ON PLU=ON L11 (3A) L18
 L20 5671 SEA ABB=ON PLU=ON L17 AND L11
 L21 1014 SEA ABB=ON PLU=ON L20 AND (L9 OR L10 OR L12 OR L13)
 L22 395 SEA ABB=ON PLU=ON L21 AND L19
 L23 QUE ABB=ON PLU=ON (HYDROGEN OR H) (2A) (ABSORB? OR
 ADSORB?)
 L24 12 SEA ABB=ON PLU=ON L22 AND L23
 L25 QUE ABB=ON PLU=ON MU(W)M OR MICROMETER# OR MICRON#
 L26 8 SEA ABB=ON PLU=ON L24 AND L25
 L27 12 SEA ABB=ON PLU=ON L24 OR L26

FILE 'WPIX' ENTERED AT 15:26:30 ON 25 APR 2007

L28 6954 SEA ABB=ON PLU=ON (L15 OR L16) (3A) L14
 L29 1445 SEA ABB=ON PLU=ON L28 AND (L9 OR L10)
 L30 345 SEA ABB=ON PLU=ON L29 AND L11
 L31 10 SEA ABB=ON PLU=ON L30 AND L23
 L32 9 SEA ABB=ON PLU=ON L31 AND (L19 OR L25)

FILE 'COMPENDEX' ENTERED AT 15:29:15 ON 25 APR 2007

L33 18787 SEA ABB=ON PLU=ON (L15 OR L16) (3A) L14
 L34 3606 SEA ABB=ON PLU=ON L33 AND (L9 OR L10)
 L35 558 SEA ABB=ON PLU=ON L34 AND L11
 L36 1 SEA ABB=ON PLU=ON L35 AND L23
 D SCA

FILE 'JAPIO' ENTERED AT 15:38:48 ON 25 APR 2007

L37 2440 SEA ABB=ON PLU=ON (L15 OR L16) (3A) L14
 L38 444 SEA ABB=ON PLU=ON L37 AND (L9 OR L10)
 L39 71 SEA ABB=ON PLU=ON L38 AND L11
 L40 1 SEA ABB=ON PLU=ON L39 AND L23

FILE 'INSPEC' ENTERED AT 15:40:13 ON 25 APR 2007

L41 13559 SEA ABB=ON PLU=ON (L15 OR L16) (3A) L14
 L42 2768 SEA ABB=ON PLU=ON L41 AND (L9 OR L10)
 L43 641 SEA ABB=ON PLU=ON L42 AND L11
 L44 2 SEA ABB=ON PLU=ON L43 AND L23

FILE 'PASCAL' ENTERED AT 15:41:18 ON 25 APR 2007

L45 6764 SEA ABB=ON PLU=ON (L15 OR L16) (3A) L14
 L46 1481 SEA ABB=ON PLU=ON L45 AND (L9 OR L10)
 L47 313 SEA ABB=ON PLU=ON L46 AND L11
 L48 4 SEA ABB=ON PLU=ON L47 AND L23

FILE 'WPIX' ENTERED AT 15:43:02 ON 25 APR 2007
 SEL L32 PN,APPS

FILE 'HCAPLUS' ENTERED AT 15:43:18 ON 25 APR 2007

L49 9 SEA ABB=ON PLU=ON (WO1998-CA946/APPS OR EP1998-947250/A
 L50 11 SEA ABB=ON PLU=ON L27 NOT L49

EXAMPLE - An aggregate of magnesium particles (as metal matrix particles) having a purity of 99.9% and a particle size (D) of 10 microns and aggregate of iron particles (as added component particles) having a purity of 99.9% and particle size of (d0) of 20 nm were prepared. The mixture powder was placed into a container having a volume of 80 ml of a ball mill together with 18 balls having a diameter of 10 mm and subjected to ball milling with the inside of the container maintained at a hydrogen gas atmosphere of 2.0 MPa under conditions of a container-rotational speed of 780 rpm and milling time of 15 minutes. The hydrogen absorbing alloy powder was recovered and dehydrogenated. The rate of hydrogen absorption was high and hydrogen storage capacity was large.

FILE SEGMENT: CPI; GMPI; EPI
 MANUAL CODE: CPI: E11-S; E31-A02; L03-E04; M22-H01
 EPI: X16-C; X21-A01F; X21-B01A

L32 ANSWER 4 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
 ACCESSION NUMBER: 2001-519687 [57] WPIX
 DOC. NO. CPI: C2001-155450 [57]
 DOC. NO. NON-CPI: N2001-384712 [57]
 TITLE: Pulverization of hydrogen storage alloys in
 negative electrodes of nickel
 metal hydride batteries
 DERWENT CLASS: L03; X16
 INVENTOR: CHEN S; HUANG H; LEE T; MA C; PENG C
 PATENT ASSIGNEE: (CHUN-N) CHUNG SHAN INST SCI & TECHNOLOGY
 COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
TW 428334	A	20010401	(200157)*	ZH	[1]	H01M010-26

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
TW 428334 A		TW 1998-100105	19980106

PRIORITY APPLN. INFO: TW 1998-100105 19980106

INT. PATENT CLASSIF.:

MAIN: H01M010-26

BASIC ABSTRACT:

TW 428334 A UPAB: 20050526

NOVELTY - Continuous cyclic pulverization process for fabricating hydrogen storage alloys used in negative electrodes of nickel metal hydride batteries. The hydride-dehydride pulverization method is designed as the type of continuously cyclic hydride-dehydride pulverization, in which hydrogen absorbed by the pulverized hydrogen storage alloys is heated and is released. Another set of hydrogen storage alloys is used as the hydrogen absorption source so as to have the cyclic effects of hydride and dehydride. In this manner, the cyclic utilization of hydrogen can be effective and the hydrogen storage alloys are continuously pulverized. The particle-size distribution of powder is concentrated and the ratio

occupied by powder having size smaller than 100 microns is more than 90%.

USE - Under appropriate control of hydrogen absorption temperature, pressure and time, the hydrogen storage alloys are directly pulverized into powder, which is required for fabricating negative electrodes of nickel metal hydride batteries, after one time of hydrogen absorption process.

ADVANTAGE - The multi benefits, such as decreasing production cost and enhancement of environment protection, can be obtained. The conventional mechanically roughly shattering or finely grinding is not used in this process and only hydride-dehydride pulverization method is used.

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: L03-E01B4
EPI: X16-B01A3; X16-E01G

L32 ANSWER 5 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2000-317669 [27] WPIX
DOC. NO. CPI: C2000-096097 [27]
DOC. NO. NON-CPI: N2000-238450 [27]
TITLE: Hydrogen storage composition has hydrogenated and dehydrogenated states where the former state includes a hydrided composition of lithium and an element
DERWENT CLASS: E35; E36; J06; L03; P53; X16
INVENTOR: STROEM-OLSEN J O; STROM-OLSEN J O; ZALUSKA A; ZALUSKI L
PATENT ASSIGNEE: (STRO-I) STROM-OLSEN J O; (UYMC-N) UNIV MCGILL; (ZALU-I) ZALUSKA A; (ZALU-I) ZALUSKI L
COUNTRY COUNT: 81

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2000020328	A1	20000413	(200027)*	EN	27 [6]	C01B003-00
AU 9894254	A	20000426	(200036)	EN		C01B003-00
US 20010014309	A1	20010816	(200149)	EN		C01B006-04
EP 1129027	A1	20010905	(200151)	EN		C01B003-00
EP 1129027	B1	20020717	(200254)	EN		C01B003-00
JP 2002526658	W	20020820	(200258)	JA	26	C22C024-00
DE 69806649	E	20020822	(200263)	DE		
US 6514478	B2	20030204	(200313)	EN		C01B003-04
ES 2181273	T3	20030216	(200321)#	ES		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000020328	A1	WO 1998-CA946	19981007
AU 9894254	A	AU 1998-94254	19981007
DE 69806649	E	DE 1998-69806649	19981007
EP 1129027	A1	EP 1998-947250	19981007
EP 1129027	B1	EP 1998-947250	19981007
DE 69806649	E	EP 1998-947250	19981007
ES 2181273	T3	EP 1998-947250	19981007
AU 9894254	A	WO 1998-CA946	19981007
US 20010014309	A1 Cont of	WO 1998-CA946	19981007
EP 1129027	A1	WO 1998-CA946	19981007

EP 1129027 B1	WO 1998-CA946 19981007
JP 2002526658 W	WO 1998-CA946 19981007
DE 69806649 E	WO 1998-CA946 19981007
US 6514478 B2 Cont of	WO 1998-CA946 19981007
JP 2002526658 W	JP 2000-574454 19981007
US 20010014309 A1	US 2001-820836 20010330
US 6514478 B2	US 2001-820836 20010330

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69806649 E	Based on	EP 1129027 A
ES 2181273 T3	Based on	EP 1129027 A
AU 9894254 A	Based on	WO 2000020328 A
EP 1129027 A1	Based on	WO 2000020328 A
EP 1129027 B1	Based on	WO 2000020328 A
JP 2002526658 W	Based on	WO 2000020328 A
DE 69806649 E	Based on	WO 2000020328 A

PRIORITY APPLN. INFO: WO 1998-CA946 19981007

INT. PATENT CLASSIF.:

MAIN: C22C024-00

IPC RECLASSIF.: B01J0020-04 [I,A]; B01J0020-04 [I,C]; B22F0001-00 [I,A]; B22F0001-00 [I,C]; C01B0003-00 [I,A]; C01B0003-00 [I,C]; C01B0006-00 [I,A]; C01B0006-00 [I,C]; C01B0006-24 [I,A]; C22C0001-00 [I,A]; C22C0001-00 [I,C]; C22C0001-04 [I,A]; C22C0001-04 [I,C]; C22C0024-00 [I,A]; C22C0024-00 [I,C]

BASIC ABSTRACT:

WO 2000020328 A1 UPAB: 20050705

NOVELTY - A hydrogen storage composition has a hydrogenated state to liberate hydrogen and a dehydrogenated state to **absorb** gaseous hydrogen where the former state includes a hydrided composition of lithium and an element selected from a **metal** which forms a hydride, an element E which forms a solid solution with lithium or at least a **metal** and E.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the production of a source of hydrogen gas comprising:

(a) liberating hydrogen from a composition at elevated temperature with formulation of the dehydrogenated state of the composition; and

(b) removing the liberated hydrogen and regenerating hydrogenated state by exposing the dehydrogenated to hydrogen gas.

USE - For use as a reduction agent in many reactions such as in the production of borates or silanes.

ADVANTAGE - The Li-based hydride has other elements so that it becomes usable for reversible hydrogen storage. Li-Be-hydrides are easily fabricated and exhibit outstanding reversible hydrogenation performance.

TECHNOLOGY FOCUS:

INORGANIC CHEMISTRY - Preferred Composition: The hydrided composition comprises lithium and a **metal**, lithium and an element E or lithium and a **metal** and an element. It is represented by formula (I):

$$\text{Li}_x\text{MyHz} \text{ (I)}$$

$$x = 1-5;$$

$$y = 1-3;$$

$$z = x+2y$$

It is preferably represented by formula (II);
Li5Be3H11 (II)

The molar ratio of Li to element E is 7:1-1:2. The hydrided composition is a hydrided **mechanically alloyed** composition of lithium and E which is in **particulate** form having been ball milled to a fine **particulate** size below 100 nm.

Preferred Metal: The metal does not form an intermetallic compound or solid-state solution with lithium. It is Be, Mg, Ti, V or Zr.

Preferred Element: The element E is C, B, Si, P, Zn, Mn, Ni, Fe, Cr, Cu, Al, Ca, Na or K.

Preferred Method: The elevated temperature is 100-300 degreesC. Exposing is carried out at 100-350 degreesC under a hydrogen pressure of 5-60 atmospheric. The method comprises ball milling a lithium component selected from elemental lithium or lithium hydride with a metal, an element E or both to form a lithium-based composition and, when necessary or desired, hydrogenating the lithium-based composition.

EXTENSION ABSTRACT:

EXAMPLE - Li5Be3H11 hydride was fabricated by ball milling lithium hydride and beryllium which were sealed under argon atmosphere in a vial of hardened steel with steel balls. The system was evacuated and kept under vacuum for 10 minutes. It was heated to 270 degreesC and hydrogen was admitted reaching a pressure of 30 atmospheres. A hydrogen capacity of 8 weight% was achieved. The x-ray diffraction pattern of the material after hydrogenation has no traces of free lithium hydride, beryllium or beryllium hydride, which confirms formation of a different, complex structure. After releasing 8 weight % hydrogen, i.e., decomposition, the material again consisted of lithium hydride and beryllium. X-ray diffraction patterns are obtained reversibly for the hydrogenated and dehydrogenated states of the material.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: E31-A02; E31-A04; E31-K07; E31-Q02; J06-B;
L03-E04
EPI: X16-B01A3; X16-E01C

L32 ANSWER 6 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2000-129090 [12] WPIX
DOC. NO. CPI: C2000-039797 [12]
DOC. NO. NON-CPI: N2000-097315 [12]
TITLE: Method for filling hydrogen
absorbing alloy in hydrogen
storage apparatus - involves mixing alloy powder
of hydrogen absorption property with metal
binder to form globular particles which
are then granulated and activated
DERWENT CLASS: E36; J06; M22; P53; Q69
INVENTOR: MORI T
PATENT ASSIGNEE: (TOYT-C) TOYOTA JIDOSHA KK
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
JP 11311400	A	19991109 (200012)*	JA	5[2]	F17C011-00

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 11311400 A		JP 1998-120450	19980430

PRIORITY APPLN. INFO: JP 1998-120450 19980430

INT. PATENT CLASSIF.:

IPC RECLASSIF.: B22F0001-00 [I,A]; B22F0001-00 [I,C]; B22F0009-02 [I,C]; B22F0009-04 [I,A]; C01B0003-00 [I,A]; C01B0003-00 [I,C]; C22C0014-00 [I,A]; C22C0014-00 [I,C]; F17C0011-00 [I,A]; F17C0011-00 [I,C]

BASIC ABSTRACT:

JP 11311400 A UPAB: 20050409

NOVELTY - An alloy powder (1) of hydrogen absorption property is mixed with a resin or metal binder (2) to form globular particles which are subsequently granulated. The granulated alloy is filled in a hydrogen storage apparatus and activated (7).

USE - In hydrogen storage apparatus (claimed) for performing absorption and release of hydrogen.

ADVANTAGE - The filling property of the hydrogen absorbing alloy increases with apparent increase in particle size by granulation. The particles in the hydrogen storage apparatus get rearranged on activation, thus reducing distortion of container by dilation. Thermal conductivity of the dispersed metal binder is improved. DESCRIPTION OF DRAWING(S) - The figure is an explanatory drawing of filling method of hydrogen absorbing alloy. (1) Hydrogen absorbing alloy; (2) Metal binder; (3) Mixer; (4) Molding press; (5) Granulator; (6) Storage container; (7) Activated particles; (10) Filled layer.

DOCUMENTATION ABSTRACT:

JP11311400

USE

In hydrogen storage apparatus (claimed) for performing absorption and release of hydrogen.

ADVANTAGE

The filling property of the hydrogen absorbing alloy increases with apparent increase in particle size by granulation. The particles in the hydrogen storage apparatus get rearranged on activation, thus reducing distortion of container by dilation. Thermal conductivity of the dispersed metal binder is improved.

NOVELTY

An alloy powder (1) of hydrogen absorption property is mixed with a resin or metal binder (2) to form globular particles which are subsequently granulated. The granulated alloy is filled in a hydrogen storage apparatus and activated (7).

DESCRIPTION OF DRAWING(S)

The figure is an explanatory drawing of filling method of hydrogen absorbing alloy. (1) Hydrogen absorbing alloy; (2) Metal binder; (3) Mixer; (4) Molding press; (5) Granulator; (6) Storage container; (7) Activated particles; (10) Filled layer.

INORGANIC CHEMISTRY

Preferred Method: The metal binder of flake-shape

has higher heat conductivity than the metal alloy. The metal powder of heat conductive property is chosen from two or more kinds of metals like copper, aluminum, nickel and occupies a volume percent of 5-20 in the hydrogen storage apparatus (6).

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: E11-S; E31-A02; J06-B; M22-H01; M22-H02

L32 ANSWER 7 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

ACCESSION NUMBER: 1999-377238 [32] WPIX

DOC. NO. CPI: C1999-111387 [32]

DOC. NO. NON-CPI: N1999-282264 [32]

TITLE: **Hydrogen absorbing alloy for electrode used as cathode plates - involves subjecting alloy of specific form with Laves phase to hydrogenation pulverised grinding for obtaining alloy powder with specific mean particle diameter**

DERWENT CLASS: A85; E36; L03; M26; X16

INVENTOR: KOBAYASHI K; OGURA T; TAKATSUKA Y

PATENT ASSIGNEE: (KOB-E) SHIN KOB-E ELECTRIC MACHINERY

COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 11144722	A	19990528	(199932)*	JA	6[3]	H01M004-24

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 11144722	A	JP 1997-310561	19971112

PRIORITY APPLN. INFO: JP 1997-310561 19971112

INT. PATENT CLASSIF.:

IPC RECLASSIF.: C22C0019-00 [I,A]; C22C0019-00 [I,C]; H01M0010-24 [I,C]; H01M0010-30 [I,A]; H01M0004-24 [I,A]; H01M0004-24 [I,C]; H01M0004-38 [I,A]; H01M0004-38 [I,C]; H01M0004-62 [I,A]; H01M0004-62 [I,C]

BASIC ABSTRACT:

JP 11144722 A UPAB: 20050521

NOVELTY - By hydrogenation pulverised grinding of ingot ABx where A and B are metals and $1.5 \leq x \leq 2.5$, the hydrogen absorbing alloy powder of 10-75 μm mean particle diameter having Laves phase is obtained. The hydrogen absorbing alloy and binder are included in electrode active metal layer.

USE - For hydrogen absorbing alloy electrode used as cathode plates in nickel hydrogen storage battery.

ADVANTAGE - Increases capacitance and life cycle of battery due to usage of mean particle diametered

hydrogen absorbing alloy powder. - DESCRIPTION OF

DRAWING(S) - The figure shows the graph representing the mean particle diameter of the hydrogen absorbing alloy powder.

DOCUMENTATION ABSTRACT:

JP11144722

USE

For **hydrogen absorbing** alloy electrode
used as cathode plates in **nickel hydrogen storage**
battery.

ADVANTAGE

Increases capacitance and life cycle of battery due to usage
of mean **particle diametered hydrogen**
absorbing alloy powder.

NOVELTY

By hydrogenation pulverised grinding of ingot ABx where A and
B are **metals** and $1.5 \leq x \leq 2.5$, the
hydrogen absorbing alloy powder of 10-75 μm
mean **particle diameter** having Laves phase is
obtained. The **hydrogen absorbing** alloy and
binder are included in electrode active **metal** layer.

DESCRIPTION OF DRAWING(S)

The figure shows the graph representing the mean
particle diameter of the **hydrogen**
absorbing alloy powder.

FILE SEGMENT: CPI; EPI

MANUAL CODE: CPI: A12-E06A; E31-A02; L03-E01B8; M26-B
EPI: X16-B01A3; X16-E01C

L32 ANSWER 8 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

ACCESSION NUMBER: 1999-293573 [25] WPIX

DOC. NO. CPI: C1999-086553 [25]

DOC. NO. NON-CPI: N1999-220151 [25]

TITLE: Hydrogen occluded electrode composition for
metal hydride storage batteries - has
hydrogen absorbing alloy powder
with specific grain size containing spherical and
non-spherical **hydrogen absorbing**
alloy **particles**

DERWENT CLASS: E36; L03; M22; X16

INVENTOR: FUJITANI S; HIGASHIYAMA N; HIROTA Y; IMOTO T; KATOU
K; KIMOTO M; KURODA Y; NISHIO K

PATENT ASSIGNEE: (SAOL-C) SANYO ELECTRIC CO LTD

COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 11097002	A	19990409	(199925)*	JA	8 [2]	H01M004-38

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 11097002	A	JP 1997-251611	19970917

PRIORITY APPLN. INFO: JP 1997-251611 19970917

INT. PATENT CLASSIF.:

IPC RECLASSIF.: C22C0019-00 [I,A]; C22C0019-00 [I,C]; H01M0004-24
[I,A]; H01M0004-24 [I,C]; H01M0004-38 [I,A];
H01M0004-38 [I,C]

BASIC ABSTRACT:

JP 11097002 A UPAB: 20050521
NOVELTY - **Hydrogen absorbing** alloy powder

(10) comprises spherical and non-spherical **hydrogen absorbing alloy particles** (14,16) with grain size of 30 μm or less and non-spherical **hydrogen absorbing alloy particles** (18) with grain size of 100 μm or less. Spherical alloy **particle** is about 3 vol% of powder.

USE - For **metal** hydride storage batteries such as **nickel**- hydrogen compound storage battery.

ADVANTAGE - Degree of filling and conductivity are improved by using spherical alloy **particles** with high **mechanical** strength. The non-spherical **particles** undergo pulverisation as a result of charge and discharge cycle to form spherical **particles**. DESCRIPTION OF DRAWING(S) - The figure illustrates **hydrogen absorbing alloy** electrode. (10) **Hydrogen absorbing alloy** powder; (14) Spherical **hydrogen absorbing alloy particle**; (16,18) Non-spherical **hydrogen absorbing alloy particles**.

DOCUMENTATION ABSTRACT:

JP11097002

USE

For **metal** hydride storage batteries such as **nickel**- hydrogen compound storage battery.

ADVANTAGE

Degree of filling and conductivity are improved by using spherical alloy **particles** with high **mechanical** strength. The non-spherical **particles** undergo pulverisation as a result of charge and discharge cycle to form spherical **particles**.

NOVELTY

Hydrogen absorbing alloy powder (10) comprises spherical and non-spherical **hydrogen absorbing alloy particles** (14,16) with grain size of 30 μm or less and non-spherical **hydrogen absorbing alloy particles** (18) with grain size of 100 μm or less. Spherical alloy **particle** is about 3 vol% of powder.

DESCRIPTION OF DRAWING(S)

The figure illustrates **hydrogen absorbing alloy electrode**.

(10) **Hydrogen absorbing alloy powder**

(14) Spherical **hydrogen absorbing alloy particle**

(16,18) Non-spherical **hydrogen absorbing alloy particles**.

FILE SEGMENT:

CPI; EPI

MANUAL CODE:

CPI: E11-S; E31-A02; L03-E01B4; M22-H01
EPI: X16-E01C; X16-E05

L32 ANSWER 9 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

ACCESSION NUMBER: 1993-218904 [27] WPIX

DOC. NO. CPI: C1993-097592 [27]

DOC. NO. NON-CPI: N1993-167739 [27]

TITLE: Powdered **iron@** and **cobalt@**
based alloys containing rare earth **metals** -
includes hydride grinding together with vibration
in hydrogen pressurised chamber

DERWENT CLASS:

M22; P53

INVENTOR:

BULYK I I; GRITSISHIN P M; YARTYS V A

PATENT ASSIGNEE: (KARP-R) KARPENKO PHYS MECH INST
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
SU 1748948	A1	19920723	(199327)*	RU	3	[0]

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
SU 1748948	A1	SU 1990-4852882	19900727

PRIORITY APPLN. INFO: SU 1990-4852882 19900727

INT. PATENT CLASSIF.:

IPC RECLASSIF.: B22F0009-02 [I,A]; B22F0009-02 [I,C]

BASIC ABSTRACT:

SU 1748948 A1 UPAB: 20050509

The procedure is a combination of hydride grinding and vibration, and consists of loading the alloy into a sealed chamber, evacuating the said chamber to 0.1-1.0 Pa, filling it with gaseous hydrogens to create a hydrogen pressure of 0.5MPa for a specific time, and removing the prod. from the chamber. The alloy is introduced into the chamber with the steel grinding spheres (4-10mm dia.), and the chamber is hydrogen pressurised together with the application of vibration at 45Hz and 4mm amplitude. After the **hydrogen** has been **absorbed**, the chamber is evacuated and heated to 190 deg.C. to remove any residual hydrogen. Finally, the chamber and its contents are cooled and the **alloy powder** (and **grinding spheres**) are removed.

USE/ADVANTAGE - In powder **metallurgy** to prepare ferromagnetic alloys based on **iron** and **mangenes**, containing one or more rare earth **metals**. The process is simplified and the productivity is simplified. - In an example, the KS37-L alloy (36.7 weight% Sm and Co the remainder) was treated as described above for 15 minutes. This produced powder with a 4.0 **mu.m** mean **particle size**.

Bul.27.23.7.92

FILE SEGMENT: CPI; GMPI

MANUAL CODE: CPI: M22-H01; M22-H02; M26-A02

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FILE COVERS 1977 TO DATE.

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION IS AVAILABLE
IN THE BASIC INDEX (/BI) FIELD <<<

=> d 151 iall 1-17

L51 ANSWER 1 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:342914 HCAPLUS
ENTRY DATE: Entered STN: 27 Mar 2007
TITLE: Study on microstructure and magnetic properties
of TM-Mg (TM:Fe, Co) alloys
synthesized by mechanical
alloying
AUTHOR(S): Chiba, Masafumi; Hotta, Hideki; Sotoma, Atsushi;
Kuji, Toshiro
CORPORATE SOURCE: Department of Materials Chemistry, Tokai
University, 317 Nishino, Numazu, Shizuoka,
410-0395, Japan
SOURCE: Advances in Science and Technology
(Stafa-Zuerich, Switzerland) (2006), 46(Mass and
Charge Transport in Inorganic Materials III),
152-157
CODEN: ASETES
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 56 (Nonferrous Metals and Alloys)

ABSTRACT:

Magnesium alloys are extremely attractive candidates for hydrogen storage applications since they can potentially absorb hydrogen between 3 and 8 weight%. The purpose of this work is to understand the microstructural and the magnetic properties for 3d-transition ***metal*** and magnesium alloys with the difficult to alloy by the conventional method due to the pos. value of mixing enthalpy. We successfully formed alloys of iron or cobalt, and magnesium powders with a wide range of compns. by mech. ***alloying*** and characterized synthesized alloys with an X-ray diffractometer, a TEM, an SEM-EPMA and a vibration sample magnetometer. The obtained Fe-Mg alloys containing less than 25 atomic% Mg were single phase bcc with expanded lattice parameter. The average powder ***particle*** size changes with Mg composition. The magnetization of the samples showed a linear dilution with content of Mg. The opposite variations in lattice parameter and the coercive force with Mg content were observed. On the other hand, we observed markedly broadened XRD lines from ***Co*** -Mg alloy compds. The microstructure of these powders implies that the alloy could be partially amorphized or changed into a nanostructure as expected from microscopy and an XRD results.

L51 ANSWER 2 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:583846 HCAPLUS
DOCUMENT NUMBER: 143:269528
ENTRY DATE: Entered STN: 07 Jul 2005
TITLE: Synergetic Effect between Ti and Al on the
Cycling Stability of MgNi-Based Metal Hydride
Electrodes
AUTHOR(S): Rongeat, Carine; Roue, Lionel
CORPORATE SOURCE: INRS-Energie, Matériaux et Télécommunications,
Varennnes, J3X 1S2, Can.
SOURCE: Journal of the Electrochemical Society (2005),
152(7), A1354-A1360
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal

Energy Technology)

Section cross-reference(s): 56, 72

ABSTRACT:

Amorphous MgNi, Mg_{0.9}Ti_{0.1}Ni, and Mg_{0.9}Ti_{0.1}NiAl_{0.05} compds. were prepared by **mech. alloying** and evaluated as metal hydride electrodes. The Mg_{0.9}Ti_{0.1}NiAl_{0.05} electrode retains 67% of its initial discharge capacity (404 mA-h/g) after 15 cycles, compared to 54% for Mg_{0.9}Ti_{0.1}Ni and 34% for MgNi. This confirms the synergetic effect between Ti and Al that improves the cycling stability of the MgNi-based metal hydride electrode. XPS shows the presence of TiO₂ and Al₂O₃ on the Mg_{0.9}Ti_{0.1}NiAl_{0.05} **particles**. These 2 oxides prevent the accumulation of Mg(OH)₂ on the **particles** during cycling as suggested by XRD analyses and cyclic voltammetry expts. Also, from the evolution with cycling of the ratio of the H diffusion coefficient to the *****particle*** radius (D/a²)**, Mg_{0.9}Ti_{0.1}NiAl_{0.05} appears less sensitive to pulverization. This is in accordance with an increase of the maximal amount of H **absorbed** in Mg_{0.9}Ti_{0.1}NiAl_{0.05} before a significant decay in capacity occurs. A Mg_{0.9}Ti_{0.1}NiAl_{0.05} electrode with large **particles (diameter >150 .** *****mu*** .m)** had a capacity decay rate similar to that of a com. LaNi₅-type alloy, .apprx.0.2% per cycle, under controlled charging conditions.

SUPPL. TERM: aluminum titanium synergetic effect anode cycling stability; magnesium **nickel** anode
nickel metal hydride battery

INDEX TERM: Battery anodes
Secondary batteries
(effect of synergism between Ti and Al on cycling characteristics of MgNi-based anodes for Ni-MH batteries)

INDEX TERM: Cooperative phenomena
(synergism; effect of synergism between Ti and Al on cycling characteristics of MgNi-based anodes for Ni-MH batteries)

INDEX TERM: 153129-33-0, Magnesium 50, nickel 50 (atomic)
284049-70-3, Magnesium 45, nickel 50, titanium 5 (atomic) 863608-29-1
ROLE: DEV (Device component use); USES (Uses)
(effect of synergism between Ti and Al on cycling characteristics of MgNi-based anodes for Ni-MH batteries)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD.

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HCAPLUS

L51 ANSWER 3 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:568846 HCAPLUS

DOCUMENT NUMBER: 141:109844

ENTRY DATE: Entered STN: 16 Jul 2004

TITLE: **Hydrogen-absorbing alloy**

powder containing dispersed metal oxide

INVENTOR(S): Hosoe, Mitsuya; Kanoya, Izuru; Suzuki, Takanori

PATENT ASSIGNEE(S): Honda Motor Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: B22F001-00

SECONDARY: C01B003-00

CLASSIFICATION: 56-3 (Nonferrous Metals and Alloys)

Section cross-reference(s): 52

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004197162 A 20040715 JP 2002-367071

200212
18

PRIORITY APPLN. INFO.: JP 2002-367071

200212
18

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004197162	ICM	B22F001-00
	ICS	C01B003-00
	IPCI	B22F0001-00 [ICM,7]; C01B0003-00 [ICS,7]
	IPCR	B22F0001-00 [I,A]; B22F0001-00 [I,C*]; C01B0003-00 [I,A]; C01B0003-00 [I,C*]
	FTERM	4G140/AA46; 4K018/BA07; 4K018/BB06; 4K018/BC16; 4K018/BD07

ABSTRACT:

The claimed alloy powder is an aggregate of alloy **particles** containing a **H-absorbing** metal matrix, e.g., Mg, and a plurality of dispersed metal hydroxide fine **particles**, where the matrix comprises a plurality of **H-absorbing** metal crystals having grain size $D = 1.0-500 \text{ .}\mu\text{.m}$ and the metal hydroxide fine **particles** have grain size d 10-800 nm. The alloy powder provides rapid H absorption and desorption at low temperature and large H absorption amount and is especially suitable for fuel-cell automobiles.

SUPPL. TERM: magnesium **hydrogen absorbing** alloy
powder metal hydroxide dispersion; fuel cell
automobile **hydrogen absorbing**
alloy

INDEX TERM: Electric vehicles
(automobiles, fuel-cell; **hydrogen-**
absorbing alloy powder containing metal
hydroxide **particles** dispersed in
magnesium matrix)

INDEX TERM: Automobiles
(elec., fuel-cell; **hydrogen-**
absorbing alloy powder containing metal
hydroxide **particles** dispersed in
magnesium matrix)

INDEX TERM: **Mechanical alloying**
(**hydrogen-absorbing**
alloy powder containing metal hydroxide
particles dispersed in magnesium matrix)

INDEX TERM: 1305-62-0, Calcium hydroxide, uses 1309-33-7, Ferric
hydroxide 1309-42-8, Magnesium hydroxide
1310-65-2, Lithium hydroxide 1332-62-3, Manganese
hydroxide Mn(OH)3 1333-74-0, **Hydrogen**,
uses 7439-95-4, Magnesium, uses 12054-48-7,
Nickel hydroxide 12125-21-2, Cuprous
hydroxide 12134-11-1, Chromium hydroxide Cr(OH)2
12315-33-2, **Nickel** hydroxide NiOH
14507-19-8, Lanthanum hydroxide 16469-16-2,
Praseodymium hydroxide 16469-17-3, Neodymium
hydroxide 16469-22-0, Yttrium hydroxide
18624-44-7, Ferrous hydroxide 18933-05-6, Manganese
hydroxide Mn(OH)2 20338-08-3, Titanium hydroxide
Ti(OH)4 20403-06-9, Samarium hydroxide 20427-59-2,

Cupric hydroxide 21041-93-0, **Cobalt**
 hydroxide $\text{Co}(\text{OH})_2$ 21645-51-2, Aluminum
 hydroxide, uses 39096-97-4, Vanadium hydroxide
 $\text{V}(\text{OH})_2$ 59201-64-8, **Ruthenium** hydroxide
 $\text{Ru}(\text{OH})_2$
 ROLE: TEM (Technical or engineered material use); USES
 (Uses)
 (hydrogen-absorbing alloy
 powder containing metal hydroxide
 particles dispersed in magnesium matrix)

L51 ANSWER 4 OF 17 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS
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ACCESSION NUMBER: 2004-0379701 PASCAL
 COPYRIGHT NOTICE: Copyright .COPYRGT. 2004 INIST-CNRS. All rights
 reserved.
 TITLE (IN ENGLISH): Microstructure and hydrogen absorption-
 desorption properties of Mg-
 $\text{TiFe.sub.0.sub...sub.9.sub.2Mn.sub.0.sub...sub.0}$
 .sub.8 composites prepared by wet mechanical
 milling
 AUTHOR: KONDO Toshihiko; SHINDO Kazuhiko; ARAKAWA
 Masayasu; SAKURAI Yoji
 CORPORATE SOURCE: NTT Microsystem Integration Laboratories, NTT
 Corporation, 3-1 Morinosato-Wakamiya,
 Atsugi-shi, Kanagawa 243-0198, Japan; NTT Energy
 and Environment Systems Laboratories, NTT
 Corporation, 3-1 Morinosato-Wakamiya,
 Atsugi-shi, Kanagawa 243-0198, Japan
 SOURCE: Journal of alloys and compounds, (2004), 375,
 283-291, 17 refs.
 ISSN: 0925-8388
 DOCUMENT TYPE: Journal
 BIBLIOGRAPHIC LEVEL: Analytic
 COUNTRY: Switzerland
 LANGUAGE: English
 AVAILABILITY: INIST-1151, 354000112103000470
 ABSTRACT: The microstructure and hydrogen
 absorption-desorption properties of the Mg-50
 weight% $\text{TiFe.sub.0.sub...sub.9.sub.2Mn.sub.0.sub...sub.0}$
 .sub.8 composites prepared by wet
 mechanical milling of Mg and
 $\text{TiFe.sub.0.sub...sub.9.sub.2Mn.sub.0.sub...sub.0}$
 .sub.8 powders in n-hexane were evaluated. With
 increasing milling time and/or rotation speed,
 the average **particle** and crystallite
 sizes of Mg and $\text{TiFe.sub.0.sub...sub.9.sub.2Mn.s}$
 $\text{ub.0.sub...sub.0.sub.8}$ reduced and the
 $\text{TiFe.sub.0.sub...sub.9.sub.2Mn.sub.0.sub...sub.0}$
 .sub.8 phase was uniformly distributed in the Mg
 matrix. After activation, all composites
absorbed hydrogen at 25
 $^{\circ}\text{C}$, and the hydrogen absorption-
 desorption properties were improved with
 increasing the degree of dispersion of the
 $\text{TiFe.sub.0.sub...sub.9.sub.2Mn.sub.0.sub...sub.0}$
 .sub.8 phase in the as-milled composite. A
 composite milled at 600 rpm for 80 h
absorbed hydrogen of nearly
 3.5 weight% at 25 $^{\circ}\text{C}$ and started to desorb

hydrogen around 300°C under hydrogen pressure of 0.1 MPa. These good hydrogen absorption-desorption properties are due to the high degree of dispersion of TiFe.sub.0.sub...sub.9.sub.2Mn.sub.0.sub...sub.0.sub.8 phase, the introduction of micro-cracks and the formation of TiFe.sub.0.sub...sub.9.sub.2.sub.-.sub.xMn.sub.0.sub...sub.0.sub.8 and α -Fe phases. We also found that the formation of TiFe.sub.0.sub...sub.9.sub.2.sub.-.sub.xMn.sub.0.sub...sub.0.sub.8 and α -Fe phases affects the thermodynamic stability of the resultant hydride.

CLASSIFICATION CODE: 001D11F; Applied sciences; Metals, Metallurgy, Materials science; Chemical properties, Electrochemical properties
001D11C03; Applied sciences; Metals, Metallurgy, Materials science; Metallic material transformation
240; Metals, Metallurgy, Materials science

CONTROLLED TERM: Microstructure; Desorption; **Mechanical alloying**; **Particle** size; Microcrack; Absorption; Thermodynamic stability; Hydrogen; **Metal** matrix composite; Hydrides; Composite material; Titanium alloy; **Iron** alloy; Magnesium

L51 ANSWER 5 OF 17 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 1
ACCESSION NUMBER: 2004(43):11174 COMPENDEX
TITLE: Nanocrystalline **hydrogen absorbing** Mg-Ni alloy processed by **mechanical** (ball) milling.

AUTHOR: Bystrzycki, J. (Inst. Mat. Technol./Appl. Mechanics Military University of Technology, Warsaw 49 00-908, Poland); Czujko, T.; Varin, R.A.; Oleszak, D.; Durejko, T.; Darlewski, W.; Bojar, Z.; Przetakiewicz, W.

SOURCE: Reviews on Advanced Materials Science v 5 n 5 December 2003 2003.p 450-454

SOURCE: Reviews on Advanced Materials Science v 5 n 5 December 2003 2003.p 450-454
ISSN: 1606-5131

PUBLICATION YEAR: 2003
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
LANGUAGE: English

ABSTRACT: A nearly single-phase Mg₂Ni alloy obtained by ingot **metallurgy** was mechanically (ball) milled for 20 h in two types of ball mills: Fritsch and Spex with the objective of obtaining nanocrystalline powders suitable for subsequent hydrogenation in gaseous hydrogen. The powders processed in both ball mills are characterized by quite similar average powder **particle** size which is within the range of 1-30 μ m and the average nanograin size of the Mg₂Ni phase which is on the order of 7 nm as roughly estimated from the Scherrer formula.

However, X-ray diffraction (XRD) spectrum from the Spex powder gives some evidence of partial amorphization of the Mg₂Ni phase as opposed to the Fritsch powder. Hydriding tests of both powders investigated in an automated Sieverts apparatus have shown that the Fritsch powder exhibits faster hydriding kinetics than its Spex counterpart. The overall kinetics of hydrogen sorption for the faster absorbing Fritsch powder seems to be roughly in the same range as reported in the literature since it absorbs about 2.7 weight% of hydrogen after 1800 s (30 min). The differences in the hydriding kinetics between the Fritsch and Spex powders are discussed in terms of the presence of the partially amorphized Mg₂Ni phase as well as the presence of higher density of embedded MgNi₂ particles in the Fritsch powder which can act as catalysts for hydrogen sorption, differences in the contamination from Fe pick up and MgO impurities content during milling in both powders, difference in the expansion of unit cell volume and mill-dependent different deformation mechanisms of powder particles (e.g. twinning vs. dislocation accumulation). \$CPY 2003 Advanced Study Center Co. Ltd. 13 Refs.

CLASSIFICATION CODE:

933.1 Crystalline Solids; 542.2 Magnesium and Alloys; 802.3 Chemical Operations; 804 Chemical Products Generally; 534.2 Foundry Practice; 536.1 Powder Metallurgy Operations

CONTROLLED TERM:

*Nanostructured materials; X ray diffraction analysis; Amorphization; Density (specific gravity); Reaction kinetics; Particle size analysis; Grain size and shape; Magnesium alloys; Absorption; Hydrogen; Ball milling; Ingots; Powder metallurgy

SUPPLEMENTARY TERM:

Hydrogen absorbing alloy;
Ingot metallurgy; Nanocrystalline powders; Hydriding kinetics

ELEMENT TERM:

Mg*Ni; Mg sy 2; sy 2; Ni sy 2; Mg₂Ni; Mg cp; cp; Ni cp; MgNi; Fe; Mg*O; MgO; O cp; Co; Mg-Ni

L51 ANSWER 6 OF 17 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 2003-0304254 PASCAL

COPYRIGHT NOTICE: Copyright .COPYRG. 2003 INIST-CNRS. All rights reserved.

TITLE (IN ENGLISH): The effect of MgNi.sub.2 intermetallic compound on nanostructurization and amorphization of Mg-Ni alloys processed by controlled mechanical milling

AUTHOR: VARIN R. A.; CZUJKO T.; MIZERA J.

CORPORATE SOURCE: Department of Mechanical Engineering, University of Waterloo, Waterloo, Ontario, N2L 3G1, Canada; Military University of Technology, Kaliskiego 2, 00-908 Warsaw, Poland; Department of Materials Science and Engineering, Warsaw University of Technology, Woloska 141, 02-507 Warsaw, Poland

SOURCE: Journal of alloys and compounds, (2003), 354,

281-295, 47 refs.
ISSN: 0925-8388
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Switzerland
LANGUAGE: English
AVAILABILITY: INIST-1151, 354000118116690500
ABSTRACT: Two Mg-Ni alloys with 27.9±11.1 and 57.5±0.8 at% Ni, fabricated by ingot metallurgy (IM) and containing .eqvsim.9 and .eqvsim.79 vol% of the MgNi.sub.2 phase, respectively, were ball (mechanically) milled in a magnetic Uni-Ball-Mill 5 under controlled shearing mode for 10, 30, 70 and 100 h. The evolution of the microstructure of milled powders is presented. It is observed that the Mg.sub.2Ni phase undergoes a partial amorphization in the Mg-Ni alloys containing .eqvsim.79 vol% of the MgNi.sub.2 phase while no amorphization of Mg.sub.2Ni is observed in the alloy containing only .eqvsim.9 vol% of MgNi.sub.2. The results are rationalized in terms of the enthalpy effects based on the application of Miedema's semi-empirical model to the phase changes in ball-milled intermetallics and the critical nanograin size required to be formed in the Mg.sub.2Ni phase before triggering its amorphization, which is enhanced by the presence of hard MgNi.sub.2 phase during ball milling. The milled powders of 27.9±11.1 at% Ni alloy, after long-term milling for 100 h, did not absorb hydrogen.

CLASSIFICATION CODE: 001B80A20; Physics; Materials science
001B80A05Y; Physics; Materials science
PHYS. AND ASTRONOM.CODE: 8120E; 8116B
CONTROLLED TERM: Amorphization; Mechanical alloying; Experimental study; Powder metallurgy; Ball mill; Particle size distribution; Microstructure; Enthalpy; Semiempirical method; Phase transformations; Intermetallic compounds; Nickel alloys; Nanostructured materials; Magnesium alloys; Binary alloys
BROADER TERM: Transition element alloys

L51 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:193260 HCAPLUS
DOCUMENT NUMBER: 136:234661
ENTRY DATE: Entered STN: 17 Mar 2002
TITLE: Composite-type sintered hydrogen-absorbing electrodes and their manufacture for secondary batteries
INVENTOR(S): Kato, Kaoru; Minowa, Takehisa
PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
INT. PATENT CLASSIF.:

MAIN: H01M004-24
 SECONDARY: H01M004-26
 CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 56
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002075341	A	20020315	JP 2000-265097	20000901
PRIORITY APPLN. INFO.:				JP 2000-265097 20000901

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2002075341	ICM	H01M004-24
	ICS	H01M004-26
	IPCI	H01M0004-24 [ICM,7]; H01M0004-26 [ICS,7]
	IPCR	H01M0004-24 [I,C*]; H01M0004-24 [I,A]; H01M0004-26 [I,C*]; H01M0004-26 [I,A]

ABSTRACT:

The electrodes (d. 2.0-7.0 g/cm³) are manufactured by dry-milling H-
 absorbing intermetallic compds. LnM_x (x = 4.0-6.5; Ln = rare
 earth metal; M = Ni, Fe, Cr, Co,
 Al, and/or Mn) having CaCu₅-type crystal structures with a jet mill under
 high-pressure inert gas to give powders with average **particle**
 size 2-20 . μ m, applying the powders or
 their slurries on current collectors selected from porous **metals**
 , **metallic** fibers, punched **metals**, expanded
 metals , and/or wire cloth nets, pressing the current collectors
 under 0.1-10 ton/cm², and firing the resulting composite electrodes (d.
 1.5-6.5 g/cm³) at 700-1000° under vacuum, inert atmospheric, or reducing
 atmospheric for 10 min to 10 h. Ni-H batteries using the electrodes
 as anodes show good high-rate discharge characteristics.

SUPPL. TERM: **hydrogen absorbing** alloy anode
 nickel battery; composite anode alloy jet
 milling battery
 INDEX TERM: Wires
 (cloth; manufacture of composite-type sintered
hydrogen-absorbing anodes for
 secondary batteries)
 INDEX TERM: Milling (size reduction)
 (jet; manufacture of composite-type sintered
hydrogen-absorbing anodes for
 secondary batteries)
 INDEX TERM: Battery anodes
 (manufacture of composite-type sintered **hydrogen**
-absorbing anodes for secondary
 batteries)
 INDEX TERM: Metallic fibers
 Metals, uses
 ROLE: DEV (Device component use); PEP (Physical,
 engineering or chemical process); PYP (Physical

process); TEM (Technical or engineered material use);
 PROC (Process); USES (Uses)
 (manufacture of composite-type sintered **hydrogen**
-absorbing anodes for secondary
 batteries)

INDEX TERM: Sintering
 (vacuum; manufacture of composite-type sintered
hydrogen-absorbing anodes for
 secondary batteries)

INDEX TERM: 1333-74-0, Hydrogen, uses
 ROLE: TEM (Technical or engineered material use); USES
 (Uses)
 (alloys containing absorbed; manufacture of composite-type
 sintered **hydrogen-absorbing**
 anodes for secondary batteries)

INDEX TERM: 7440-02-0, Nickel, uses 165178-04-1
 ROLE: DEV (Device component use); PEP (Physical,
 engineering or chemical process); PYP (Physical
 process); TEM (Technical or engineered material use);
 PROC (Process); USES (Uses)
 (manufacture of composite-type sintered **hydrogen**
-absorbing anodes for secondary
 batteries)

L51 ANSWER 8 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:12677 HCAPLUS

DOCUMENT NUMBER: 134:89619

ENTRY DATE: Entered STN: 05 Jan 2001

TITLE: **Hydrogen absorbing alloy**
 powders and their manufacture

INVENTOR(S): Hosoe, Mitsuya; Kanoya, Izuru; Kitagawa,
 Junichi; Furuta, Terumi; Suzuki, Takanori

PATENT ASSIGNEE(S): Honda Giken Kogyo Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 59 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: C22C001-00

SECONDARY: C22C023-00; C01B003-00; B22F001-00; B22F009-22

CLASSIFICATION: 56-3 (Nonferrous Metals and Alloys)

Section cross-reference(s): 49, 52

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001000891	A1	20010104	WO 2000-JP4176	200006 26
W: CA, JP, US				
RW: AT, BE, CH, NL, PT, SE				
CA 2377952	A1	20010104	CA 2000-2377952	200006 26
EP 1215294	A1	20020619	EP 2000-940834	200006 26

EP 1215294 B1 20060712
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, FI, CY
 US 6689193 B1 20040210 US 2002-18740

200204
 25

PRIORITY APPLN. INFO.:

JP 1999-178710

A

199906
 24

JP 1999-267553

A

199909
 21

JP 1999-267554

A

199909
 21

WO 2000-JP4176

W

200006
 26

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001000891	ICM	C22C001-00
	ICS	C22C023-00; C01B003-00; B22F001-00; B22F009-22
	IPCI	C22C0001-00 [ICM,7]; C22C0023-00 [ICS,7]; C01B0003-00 [ICS,7]; B22F0001-00 [ICS,7]; B22F0009-22 [ICS,7]; B22F0009-16 [ICS,7,C*]
	IPCR	B22F0009-02 [I,C*]; B22F0009-02 [I,A]; B22F0009-04 [I,A]; C01B0003-00 [I,C*]; C01B0003-00 [I,A]; C22C0001-04 [I,C*]; C22C0001-04 [I,A]; C22C0023-00 [I,C*]; C22C0023-00 [I,A]; H01M0004-02 [N,C*]; H01M0004-02 [N,A]; H01M0004-38 [I,C*]; H01M0004-38 [I,A]; H01M0004-46 [I,C*]; H01M0004-46 [I,A]
	ECLA	B22F009/02H; B22F009/04; C01B003/00D2F; C01B003/00D2F4; C22C001/04B; C22C023/00; H01M004/38B; H01M004/46
CA 2377952	IPCI	C22C0001-00 [ICM,7]; C01B0003-00 [ICS,7]; C22C0023-00 [ICS,7]; B22F0001-00 [ICS,7]; B22F0009-22 [ICS,7]; B22F0009-16 [ICS,7,C*]
	IPCR	B22F0009-02 [I,C*]; B22F0009-02 [I,A]; B22F0009-04 [I,A]; C01B0003-00 [I,C*]; C01B0003-00 [I,A]; C22C0001-04 [I,C*]; C22C0001-04 [I,A]; C22C0023-00 [I,C*]; C22C0023-00 [I,A]; H01M0004-02 [N,C*]; H01M0004-02 [N,A]; H01M0004-38 [I,C*]; H01M0004-38 [I,A]; H01M0004-46 [I,C*]; H01M0004-46 [I,A]
	ECLA	B22F009/02H; B22F009/04; C01B003/00D2F; C01B003/00D2F4; C22C001/04B; C22C023/00; H01M004/38B; H01M004/46
EP 1215294	IPCI	B22F0001-00 [I,C]; B22F0009-16 [I,C]; C01B0003-00 [I,C]; C22C0001-00 [I,C]; C22C0001-04 [I,C]; C22C0023-00 [I,C]; C22C0001-00 [I,A]; B22F0001-00 [I,A]; B22F0009-22 [I,A]; C01B0003-00 [I,A]; C22C0001-04 [I,A]; C22C0023-00 [I,A]

US 6689193

IPCR B22F0009-02 [I,C*]; B22F0009-02 [I,A];
 B22F0009-04 [I,A]; C01B0003-00 [I,C*];
 C01B0003-00 [I,A]; C22C0001-04 [I,C*];
 C22C0001-04 [I,A]; C22C0023-00 [I,C*];
 C22C0023-00 [I,A]; H01M0004-02 [N,C*];
 H01M0004-02 [N,A]; H01M0004-38 [I,C*];
 H01M0004-38 [I,A]; H01M0004-46 [I,C*];
 H01M0004-46 [I,A]

ECLA B22F009/02H; B22F009/04; C01B003/00D2F;
 C01B003/00D2F4; C22C001/04B; C22C023/00;
 H01M004/38B; H01M004/46

IPCI B22F0009-04 [ICM,7]; B22F0009-02 [ICM,7,C*]

IPCR B22F0009-02 [I,C*]; B22F0009-02 [I,A];
 B22F0009-04 [I,A]; C01B0003-00 [I,C*];
 C01B0003-00 [I,A]; C22C0001-04 [I,C*];
 C22C0001-04 [I,A]; C22C0023-00 [I,C*];
 C22C0023-00 [I,A]; H01M0004-02 [N,C*];
 H01M0004-02 [N,A]; H01M0004-38 [I,C*];
 H01M0004-38 [I,A]; H01M0004-46 [I,C*];
 H01M0004-46 [I,A]

NCL 075/352.000; 075/360.000; 420/900.000

ECLA B22F009/02H; B22F009/04; C01B003/00D2F;
 C01B003/00D2F4; C22C001/04B; C22C023/00;
 H01M004/38B; H01M004/46

ABSTRACT:

The alloy powders contain 2.1-47.2% Ni, 0.1-16.3% of transition
 metal selected from Ti, V, Mn, Fe, Zr, and Cu, and
 balance Mg; and have a Mg crystal grain matrix, containing fine
 particles having average diameter ≤ 20 nm inside the Mg
 grains or at the boundaries among the grains. The alloys may also
 contain no Ni when the transition metal is Ti, V, Mn,
 and/or Fe. The alloy powders are prepared by mech.
 alloying of raw material powders in ball mills in H. The alloy
 powders may be used in fuel cells for automobiles.

SUPPL. TERM: hydrogen absorbing magnesium
 alloy manuf mech alloying;
 fuel cell hydrogen absorbing
 magnesium alloy

INDEX TERM: Fuel cells
 (compns. and manufacture of hydrogen
 absorbing magnesium based alloy
 powders by mech. alloying for
 fuel cells)

INDEX TERM: Mechanical alloying
 (compns. and structure and manufacture of
 hydrogen absorbing magnesium
 based alloy powders by mech.
 alloying in hydrogen)

INDEX TERM: 317368-95-9P 317368-97-1P 317368-99-3P
 317369-01-0P 317369-03-2P 317369-05-4P
 ROLE: IMF (Industrial manufacture); TEM (Technical or
 engineered material use); PREP (Preparation); USES
 (Uses)
 (compns. and structure and manufacture of
 hydrogen absorbing magnesium
 based alloy powders by mech.
 alloying in hydrogen)

INDEX TERM: 1333-74-0, Hydrogen, uses
 ROLE: TEM (Technical or engineered material use); USES

(Uses)

(compns. and structure and manufacture of
hydrogen absorbing magnesium
based alloy powders by mech.
alloying in hydrogen)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S): (1) Honda Motor Co Ltd; JP 2000265233 A 2000 HCAPLUS
(2) Moichi, O; Boundary 1996, V12(4), P36
(3) Toshiba Corporation; CN 1123474 A HCAPLUS
(4) Toshiba Corporation; JP 08311596 A 1996 HCAPLUS
(5) Toshiba Corporation; JP 10259436 A 1998 HCAPLUS

L51 ANSWER 9 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:255046 HCAPLUS

DOCUMENT NUMBER: 134:284296

ENTRY DATE: Entered STN: 11 Apr 2001

TITLE: Hydrogen absorbing alloys

INVENTOR(S): Fukuno, Akira

PATENT ASSIGNEE(S): Tdk Electronics Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: C22C014-00

SECONDARY: B22F001-00; C22C027-06; H01M004-38

CLASSIFICATION: 56-3 (Nonferrous Metals and Alloys)

Section cross-reference(s): 49, 52

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2001098336	A	20010410	JP 1999-274049	199909 28
PRIORITY APPLN. INFO.: JP 1999-274049				199909 28

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
-----	-----	-----
JP 2001098336	ICM	C22C014-00
	ICS	B22F001-00; C22C027-06; H01M004-38
	IPCI	C22C0014-00 [ICM,7]; B22F0001-00 [ICS,7]; C22C0027-06 [ICS,7]; H01M0004-38 [ICS,7]
	IPCR	C22C0014-00 [I,A]; C22C0014-00 [I,C*]; C22C0027-00 [I,C*]; C22C0027-06 [I,A]; H01M0004-38 [I,A]; H01M0004-38 [I,C*]

ABSTRACT:

The alloys are heat treated powder of mech. alloyed
Tiav1-a-bCrb [0.2 ≤a ≤0.5, 0.1 ≤b ≤0.55, 0.4
≤(a+b) ≤0.9], having volume average particle
diameter 0.5-40 .mu.m, and a single phase of a
bcc crystalline structure.

SUPPL. TERM: hydrogen absorbing alloy

mech alloying; titanium vanadium chromium hydrogen absorbing bcc alloy
INDEX TERM: 1333-74-0, Hydrogen, miscellaneous
ROLE: MSC (Miscellaneous)
(compns. and **particle size** of **mech. alloyed** single phase bcc chromium-titanium-vanadium alloy powders for hydrogen storage)
INDEX TERM: 332402-24-1 332402-26-3 332402-28-5 332402-29-6
332402-30-9 332402-31-0 332402-33-2
ROLE: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(compns. and **particle size** of **mech. alloyed** single phase bcc chromium-titanium-vanadium alloy powders for hydrogen storage)
INDEX TERM: 7440-02-0, Nickel, uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(compns. and **particle size** of nickel coated **mech. alloyed** chromium-titanium-vanadium alloy powders for hydrogen storage)

L51 ANSWER 10 OF 17 INSPEC (C) 2007 IET on STN DUPLICATE 2
ACCESSION NUMBER: 1995:4965524 INSPEC
DOCUMENT NUMBER: A1995-13-8120G-003
TITLE: Mechanically assisted solid state hydrogenation for formation of nanocrystalline NiTiH₃ alloy powders
AUTHOR: El-Eskandarany, M.S.; (Dept. of Min. & Pet. Eng., Al-Azhar Univ., Cairo, Egypt), Ahmed, H.A.; Sumiyama, K.; Suzuki, K.
SOURCE: Journal of Alloys and Compounds (15 Feb. 1995), vol.218, no.1, p. 36-43, 44 refs.
CODEN: JALCEU, ISSN: 0925-8388
Price: 0925-8388/95/\$09.50
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: Switzerland
LANGUAGE: English
ABSTRACT: The **mechanical alloying** process has been applied to preparing f.c.c. NiTiH₃ solid solution alloy powders using a room-temperature rod mill under a reactive hydrogen gas atmosphere. The **mechanically alloyed** powders have been characterized by means of X-ray diffraction, optical microscopy, scanning electron microscopy, transmission electron microscopy and chemical analysis. During the first few kiloseconds (11 ks) of the rod milling time, the coarse powder **particles** of **Ni** and **Ti** disintegrated into several **particles** that have fresh surfaces. These fresh or new surfaces are very active and able to **absorb hydrogen gas**, so that h.c.p. Ti reacts completely with the hydrogen gas to form f.c.c. TiH₂ with grain sizes of about 60 nm diameter. During the

hydration process, the **Ni** powder **particles** are neutral and did not react with hydrogen (milling atmosphere). After a rod milling time of 43 ks, the f.c.c. TiH_2 formed diffused into **Ni** matrix to form f.c.c. NiTiH_3 solid solution with an average grain size of 10 nm diameter. This solid solution expands with increasing rod milling time (173 ks) and saturated to give a constant lattice parameter a_0 of 0.354 03 nm after milling for 360 ks. The end product of the f.c.c. NiTiH_3 solid solution consists of fine (1 μm in diameter) and homogeneous (spherical-like morphology) powder **particles**. In addition, the **metallic** hydride phase formed is very stable at temperatures as high as 993 K.

CLASSIFICATION CODE: A8120G Preparation of metals and alloys (compacts, pseudoalloys); A8120E Powder techniques, compaction and sintering; A8640K Hydrogen storage and technology; A6160 Crystal structure of specific inorganic compounds; A6480G Microstructure

CONTROLLED TERM: electron diffraction; grain boundaries; grain size; hydrogen; hydrogen economy; lattice constants; **mechanical alloying**; nanostructured materials; **nickel** alloys; optical microscopy; **particle** size; powder **metallurgy**; scanning electron microscopy; thermal stability; titanium alloys; transmission electron microscopy; X-ray diffraction

SUPPLEMENTARY TERM: mechanical alloying; rod milling; solid-gas reaction; solid state reaction; hydrogenation; powder metallurgy; metal hydrides; XRD; TEM; SEM; electron diffraction; particle size; milling time; solid solutions; lattice parameters; spherical like morphology; phase stability; NiTiH_3

CHEMICAL INDEXING: NiTiH_3 ss, H_3 ss, Ni ss, Ti ss, H ss

ELEMENT TERMS: H*Ti; TiH_3 ; Ti cp; cp; H cp; TiH; H; Ni; Ti; H*Ni*Ti; H sy 3; sy 3; Ni sy 3; Ti sy 3; NiTiH_3 ; Ni cp; TiH_2

L51 ANSWER 11 OF 17 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 1994-0694800 PASCAL

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TITLE (IN ENGLISH): A new low hydrogen overvoltage cathode for chlor-alkali electrolysis cell

AUTHOR: YOSHIDA N.; MORIMOTO T.
TRASATTI Sergio (ed.)

CORPORATE SOURCE: Asahi Glass Co., Ltd, res. cent., Kanagawa-ku, Yokohama 221, Japan

SOURCE: Electrochimica acta, (1994), 39(11-12), 1733-1737, 7 refs.
Conference: Progress in electrocatalysis : theory and practice. International symposium, Ferrara (Italy), 13 Sep 1993
ISSN: 0013-4686 CODEN: ELCAAV

DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United Kingdom
LANGUAGE: English
AVAILABILITY: INIST-1516, 354000040567100360
ABSTRACT: A new low hydrogen overvoltage cathode has been developed by using a composite-coating method. In the coating process, Raney nickel alloy and a hydrogen absorbing alloy are uniformly dispersed in a modified Watts type bath and electroplated on to a cathode substrate. During the plating, pulverized Raney nickel alloy and the hydrogen absorbing alloy are co-deposited on the substrate with nickel ions. The deposited nickel forms a nickel matrix and strongly adheres the Raney nickel alloy and the hydrogen absorbing alloy. The microscopic structure of the coating is dendritic, that enables the co-deposited Raney nickel alloy particles and the hydrogen absorbing alloy particles to expose to the surface effectively

CLASSIFICATION CODE: 001C01H02B; Chemistry; General chemistry, Physical chemistry; Electrochemistry
CONTROLLED TERM: Experimental study; Electrochemical reaction; Electrode production; Electroplating; Raney nickel; Alloys; Hydrogen; Codeposition; Alkali metal Compounds; Chlorine compounds; Electrolysis; Scanning electron microscopy; Surface structure; Sodium Hydroxides; Electrode potential

L51 ANSWER 12 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1992:534480 HCAPLUS
DOCUMENT NUMBER: 117:134480
ENTRY DATE: Entered STN: 04 Oct 1992
TITLE: Hydrogen-absorbing battery anodes and their manufacture
INVENTOR(S): Konuki, Toshiaki; Nomura, Yoichi; Tsuda, Takeshi
PATENT ASSIGNEE(S): Shin-Kobe Electric Machinery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
INT. PATENT CLASSIF.:
MAIN: H01M004-24
SECONDARY: H01M004-38
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04112458	A	19920414	JP 1990-229902	19900831

JP 3013412
PRIORITY APPLN. INFO.:

B2 20000228

JP 1990-229902

199008
31

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 04112458	ICM	H01M0004-24
	ICS	H01M0004-38
	IPCI	H01M0004-24 [ICM,5]; H01M0004-38 [ICS,5]
	IPCR	H01M0004-38 [I,C*]; H01M0004-38 [I,A]; H01M0004-24 [I,C*]; H01M0004-24 [I,A]; H01M0004-26 [I,C*]; H01M0004-26 [I,A]

ABSTRACT:

The anodes have a layer of pulverization-resistant 1st H-
adsorbing alloy powder on top of a layer of a 2nd H-
absorbing alloy powder. Preferably, the 1st alloy powder has
particle diameter $d > 150 \mu\text{m}$ and the
2nd alloy has $d < 150 \mu\text{m}$. The manufacture of the anodes
includes ≥ 1 H absorbing-desorbing cycle at -10
to $+100^\circ$ in $(0.5-10)$ -MPa H to pulverize the
alloys. Batteries using $\text{MmNi}_4.5\text{Mn}_0.2\text{Co}_0.3$ (Mm = misch metal)
anodes comprising coarse- and fine-particle layers had longer
cycle life than control batteries.

SUPPL. TERM: battery hydrogen absorbing anode;
misch metal nickel hydrogen anode;
manganese nickel cobalt hydrogen
anode; pulverization prevention hydrogen
absorbing anode

INDEX TERM: Anodes
(battery, hydrogen-absorbing
alloy, manufacture of pulverization-resistant)

INDEX TERM: 1333-74-0, Hydrogen, uses
ROLE: USES (Uses)
(alloys containing adsorbed, anodes from, preventing
pulverization of, in batteries)

INDEX TERM: 82150-66-1P
ROLE: DEV (Device component use); PREP (Preparation);
USES (Uses)
(hydrogen-absorbing, anodes,
manufacture of, for batteries)

L51 ANSWER 13 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:219653 HCAPLUS

DOCUMENT NUMBER: 116:219653

ENTRY DATE: Entered STN: 31 May 1992

TITLE: Manufacture of iron-boron-rare earth
metal alloy powder for anisotropic bond
magnets

INVENTOR(S): Saito, Hiroshi; Fujimori, Hiroyasu

PATENT ASSIGNEE(S): Seiko Electronic Components, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: C22C033-02
SECONDARY: B22F009-04

ADDITIONAL: C22C038-00
 CLASSIFICATION: 56-4 (Nonferrous Metals and Alloys)
 Section cross-reference(s): 77
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03219041	A	19910926	JP 1989-106791	19890426
JP 07033521	B	19950412	JP 1988-165440	A1 19880701

PRIORITY APPLN. INFO.:

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 03219041	ICM	C22C033-02
	ICS	B22F009-04
	ICA	C22C038-00
	IPCI	C22C0033-02 [ICM,5]; B22F0009-04 [ICS,5]; B22F0009-02 [ICS,5,C*]; C22C0038-00 [ICA,5]
	IPCR	B22F0009-02 [I,C*]; B22F0009-04 [I,A]; B22F0001-00 [I,C*]; B22F0001-00 [I,A]; C22C0033-02 [I,C*]; C22C0033-02 [I,A]; C22C0038-00 [I,C*]; C22C0038-00 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]

ABSTRACT:

The Fe alloys contain rare-earth metals (Y, La, Ce, Nd, Pr, Sm, Tb, Dy, and/or Ho) 8-30, B 1-10, and optionally Co <20 atomic%. Powder of the Fe alloys for bond magnets are manufactured by fast cooling a melt of the alloys, hot rolling, ball ***milling*** to give a particle size of 3-200 .
 mu .m or self-powdering of the alloys after
 absorbing H at 1-50 kg/cm², followed by ball milling to give a particle size of 3-200 .mu.m
 . Thus, (Nd_{0.9}Y_{0.1})₁₄Fe₈₁B₅ alloy powder was manufactured by fast cooling of the molten alloy on a high-speed ball mill, hot rolling the resulting ribbons at 650° and 80% draft, and further milling to .apprx.100 .
 mu .m. The hot-rolled ribbons of the alloy showed magnetic remanence 8.0 kG, coercive force 8.4 kOe, and the maximum magnetic energy product (BH)_{max} 13.0 MGOe.

SUPPL. TERM: neodymium iron boron alloy powder; magnetic property
 neodymium iron alloy
 INDEX TERM: Magnets
 (anisotropic boron-iron-neodymium-yttrium alloy powder for)
 INDEX TERM: Coercive force, magnetic
 Magnetic energy product
 Magnetic remanence
 (of anisotropic boron-iron-neodymium-yttrium alloy)
 INDEX TERM: 97348-09-9P 109711-77-5P 129781-30-2P
 129781-32-4P 129781-34-6P 129809-64-9P
 129809-65-0P 129809-66-1P 141252-27-9P
 141252-28-0P 141252-29-1P 141252-30-4P
 141252-31-5P 141252-32-6P 141252-33-7P

141252-34-8P 141252-35-9P 141252-36-0P
 141252-37-1P 141252-38-2P
 ROLE: PEP (Physical, engineering or chemical process);
 PREP (Preparation); PROC (Process)
 (manufacture of powdered, for bond magnets)

L51 ANSWER 14 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1987:589308 HCAPLUS
 DOCUMENT NUMBER: 107:189308
 ENTRY DATE: Entered STN: 14 Nov 1987
 TITLE: Metal binder bonded rare earth alloy powder magnets
 INVENTOR(S): Takeshita, Takuo; Watanabe, Muneaki; Ogawa, Tamotsu
 PATENT ASSIGNEE(S): Mitsubishi Metal Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 INT. PATENT CLASSIF.:
 MAIN: H01F001-08
 SECONDARY: B22F009-04
 CLASSIFICATION: 77-4 (Magnetic Phenomena)
 Section cross-reference(s): 55
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62137809	A	19870620	JP 1985-279797	19851212
JP 06066175	B	19940824	JP 1985-279797	19851212

PRIORITY APPLN. INFO.: 19851212

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 62137809	ICM	H01F001-08
	ICS	B22F009-04
	IPCI	H01F0001-08 [ICM,4]; H01F0001-032 [ICM,4,C*]; B22F0009-04 [ICS,4]; B22F0009-02 [ICS,4,C*]
	IPCR	H01F0001-032 [I,C*]; H01F0001-06 [I,A]
	ECLA	H01F001/06D

ABSTRACT:

The title process with a metal binder is characterized by H₂ absorption of a rare earth alloy in a vessel, pulverization of the alloy in H₂ or an inert gas, pressing of the alloy fine powder mixed with a metal binder powder to a form, and heat treatment of the pressed form in a vacuum for degassing. Thus, a Nd_{13.5}Dy_{1.5}Fe₇₇B₈ alloy was
 pulverized to 5.7 μ m in average
 particle size in a ball mill pot in which H₂ was introduced to 2 atmospheric A Cu powder (99.9% in purity and <300 mesh in ***particle*** size) 34 vol% was added to the alloy powder.
 The mixture was pressed to a cube at 2.5 ton/cm² and 15 kOe in magnetic field and degassed by heating at 3°/min to 600°. The magnet had improved magnetic characteristics and bonding.

SUPPL. TERM: rare earth alloy powder bonded magnet; metal binder bonded magnet; pulverization hydrogen absorbed rare earth alloy; oxidn preventive pulverization; degassing hydrogen alloy powder metal binder; neodymium dysprosium iron boron alloy; copper powder binder

INDEX TERM: Magnets
(bonded, pulverization and degassing of rare earth alloy powders for)

INDEX TERM: Desorption
(hydrogen, of rare earth alloy-metal binder mixture in bonded magnet manufacture)

INDEX TERM: Rare earth alloys, nonbase
ROLE: USES (Uses)
(oxidation-preventive pulverization and hydrogen degassing of, in bonded magnet manufacture)

INDEX TERM: Size reduction
(pulverization, of rare earth alloys with hydrogen, in bonded magnet manufacture)

INDEX TERM: 93268-62-3, Boron 8, dysprosium 1.5, iron 77, neodymium 13.5 (atomic)
ROLE: PRP (Properties)
(bonded magnets from powders of)

INDEX TERM: 7429-90-5, Aluminum, uses and miscellaneous
7439-92-1, Lead, uses and miscellaneous 7440-50-8, Copper, uses and miscellaneous 7440-66-6, Zinc, uses and miscellaneous
ROLE: USES (Uses)
(bonded magnets from rare earth alloy powders with)

INDEX TERM: 1333-74-0, Hydrogen, uses and miscellaneous
ROLE: USES (Uses)
(oxidation-preventive pulverization of rare earth alloys with, in bonded magnet manufacture)

L51 ANSWER 15 OF 17 JAPIO (C) 2007 JPO on STN

ACCESSION NUMBER: 1986-064069 JAPIO
TITLE: HYDROGEN-ABSORBING ELECTRODE
AND ITS MANUFACTURE

INVENTOR: ISHIKAWA HIROSHI; SAKAI TETSUO; OGURO KEISUKE;
KATO AKIHIKO; SUZUKI HIROSHI; IWAKURA CHIAKI;
ZAIRI YASUNORI; MORITSU YUKIKAZU; YAMASHITA
YOSHIFUMI

PATENT ASSIGNEE(S): AGENCY OF IND SCIENCE & TECHNOL
OKUNO SEIYAKU KOGYO KK

PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 61064069	A	19860402	Showa	H01M004-38

APPLICATION INFORMATION

STN FORMAT: JP 1984-186016 19840905
ORIGINAL: JP59186016 Showa
PRIORITY APPLN. INFO.: JP 1984-186016 19840905
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1986
INT. PATENT CLASSIF.:
MAIN: H01M004-38
SECONDARY: H01M004-26

ABSTRACT:

PURPOSE: To produce a **hydrogen-absorbing** electrode which is chemically stable to a liquid electrolyte and from which **hydrogen-absorbing** alloy **particles** are not separated even after repeated absorption and release of hydrogen by coating the alloy **particles** with **metallic nickel** and fixing the coated **particles** to a conductive supporter.

CONSTITUTION: **Hydrogen-absorbing** microcapsules prepared by coating **particles** of a **hydrogen-absorbing** alloy with **metallic nickel** have the same **hydrogen- absorbing** and releasing ability as the alloy, can be easily made to **absorb hydrogen** and can be easily compressed and molded. The alloy **particles** firmly adhere to each other through **nickel** in a molded body prepared by subjecting thus prepared **hydrogen-absorbing** microcapsules to compression molding. Therefore, even after charge and discharge are repeated, the **alloy particles** are not **pulverized** and they are not separated from the electrode. Accordingly, a **hydrogen- absorbing** electrode satisfying all necessary requisites can be produced by selecting a proper alloy according to the condition of battery operation and coating **particles** of the alloy with **metallic nickel** by nonelectrolytic autocatalysis plating before pressing and fixing the **particles** to a conductive supporter.

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L51 ANSWER 16 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1986:208569 HCAPLUS
DOCUMENT NUMBER: 104:208569
ENTRY DATE: Entered STN: 14 Jun 1986
TITLE: Hydrogen-storage sheets
INVENTOR(S): Yamamoto, Yutaka; Takahashi, Yoshiyasu;
Takeuchi, Masaharu
PATENT ASSIGNEE(S): Toyota Central Research and Development
Laboratories, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
INT. PATENT CLASSIF.:
MAIN: C08J005-18
SECONDARY: C08K003-08
CLASSIFICATION: 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 56
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60262830	A	19851226	JP 1984-119676	19840611
PRIORITY APPLN. INFO.:				19840611

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 60262830	ICM	C08J005-18
	ICS	C08K003-08
	IPCI	C08J0005-18 [ICM,4]; C08K0003-08 [ICS,4]; C08K0003-00 [ICS,4,C*]
	IPCR	C08J0005-18 [I,A]; C08J0005-18 [I,C*]; C08K0003-00 [I,C*]; C08K0003-08 [I,A]

ABSTRACT:

An easy-handling H-storage sheet is prepared by dispersing a metal or an alloy which reversibly **absorbs** or release H into a polymeric medium. Thus, 10 g hydrogenated La-Ni ***alloy*** was **pulverized (particle diam** . 10 μ) and mixed with 20 g siloxane (KE 471 RTV) and formed into a 100- μ sheet evolving 15 L H when heated.

SUPPL. TERM: lanthanum alloy nickel hydrogen storage; siloxane sheet hydrogen storage

INDEX TERM: Siloxanes and Silicones, uses and miscellaneous
ROLE: USES (Uses)
(sheets, containing lanthanum-nickel alloy, for hydrogen storage)

INDEX TERM: 62602-85-1
ROLE: USES (Uses)
(powdered, siloxane sheets containing, as hydrogen-storage sheets)

INDEX TERM: 1333-74-0, uses and miscellaneous
ROLE: USES (Uses)
(storage of, lanthanum-nickel alloy in siloxane sheets for)

L51 ANSWER 17 OF 17 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1985:563556 HCAPLUS

DOCUMENT NUMBER: 103:163556

ENTRY DATE: Entered STN: 16 Nov 1985

TITLE: **Hydrogen-absorbing anode**

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: H01M004-26

SECONDARY: H01M004-38

CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 56

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60109174	A	19850614	JP 1983-218001	19831118
PRIORITY APPLN. INFO.:			JP 1983-218001	19831118

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 60109174	ICM	H01M004-26
	ICS	H01M004-38
	IPCI	H01M0004-26 [ICM,4]; H01M0004-38 [ICS,4]
	IPCR	H01M0004-38 [I,A]; H01M0004-38 [I,C*]

ABSTRACT:

H-absorbing anode is prepared by press forming, with optional addition of a polymer binder, of ultrafine powder of a **H-***absorbing***** alloy ($\leq 1\mu$ diameter). **H-***absorbing***** alloy may be selected from multicomponent alloys mainly containing Ti-Ni, rare earth metals, Mg-Ti, Ca-Ti, Ti-***Fe***, Ti-Co, Ti-Cr, Ti-Mn, Ti-Zr, etc. This prevents deformation and cracking of the anode by repeated charging and discharging and results in extended cycle life of batteries using the anode. Thus, 100 g mixture of 99.5% Ti and Ni (2:1 atomic ratio) was melted in Cu crucible by arc discharge in Ar and evaporated in Ar containing H to form ultrafine ($\leq 1\mu$ diameter) particles. Alloy powder was mixed with a fluoro-resin dispersion (solid matter 3-5% of alloy), and the paste was coated on both sides of a punched *****metal***** plate, pressed, and dried. Battery using the anode and NiOOH cathode showed only 10% decrease of capacity after 150 cycles with 50 mA/g currents. Control battery using **mech.***pulverized***** alloy powder in the anode showed 30% decreased after 70 cycles. Gas pressure was much lower in the battery having the anode according to invention.

SUPPL. TERM: anode hydrogen titanium nickel alloy; battery hydrogen storage anode

INDEX TERM: Anodes
(battery, **hydrogen-absorbing** nickel-titanium alloy, manufacture and performance of)

INDEX TERM: 12196-72-4P 12740-56-6P
ROLE: DEV (Device component use); PREP (Preparation);
USES (Uses)
(anodes, **hydrogen-absorbing**, for batteries, manufacture and performance of)

INDEX TERM: 1333-74-0, uses and miscellaneous
ROLE: USES (Uses)
(anodes, lanthanum-nickel alloy containing absorbed, for batteries)

INDEX TERM: 9004-32-4
ROLE: USES (Uses)
(binder, in manufacture of **hydrogen-absorbing** anodes for batteries)

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